THE UNIVERSITY

OF ILLINOIS

LIBRARY

590.5
FI
v.7

ZOOLOGY
DEPARTMENT

BIOLOGY

Return this book on or before the *Latest Date* stamped below. A charge is made on all overdue books.

U. of I. Library

DEC 12 1940
DEC 25 1940
AUG 3 1951
NOV 29 1966
MAR 23 1967

17625-S

FIELD COLUMBIAN MUSEUM

PUBLICATION 104.

ZOÖLOGICAL SERIES. VOL. VII, NO. 1.

3194
97
Mo.D.
8

AN ANNOTATED LIST OF A COLLECTION OF REPTILES FROM SOUTHERN CALIFORNIA AND NORTHERN LOWER CALIFORNIA.

BY

SETH EUGENE MEEK, Ph. D.
Assistant Curator of Department.

D. G. ELLIOT, F. R. S. E.
Curator of Department.

CHICAGO, U. S. A.
November, 1905.

ANNOTATED LIST OF A COLLECTION OF REPTILES FROM SOUTHERN CALIFORNIA AND NORTHERN LOWER CALIFORNIA.

By SETH EUGENE MEEK, Ph. D.

The following paper is based on a collection of Reptiles obtained by Mr. Edmund Heller in southern California and northern Lower California. A very complete account of the region in question, accompanied by maps, is given by Professor D. G. Elliot in his papers* on the Mammals collected by Mr. Heller in this same area. Mr. Heller has furnished the writer valuable field notes, which have here been incorporated; these notes are indicated by quotation marks.

I wish to acknowledge my indebtedness to Dr. L. Stejneger, Curator of Reptiles in the U. S. National Museum, for assistance in identifying a large portion of this collection.

One species of *Crotalus*, from Tombstone, Arizona, is also described as new in this paper.

Family **Testudinidæ.**

Clemmys marmorata (Baird & Girard). PACIFIC TERRAPIN.

"This species is not rare in ponds along the Mojave River." No specimens were secured.

Gopherus agassizii (Cooper). DESERT TORTOISE.

Six specimens of this species were secured north of Daggett, in the Calico mining district. "They had apparently just emerged from their winter hibernation, some being taken within a few feet of their burrows. The burrows were usually made in light, gravelly soil, in which they were sunk obliquely to a depth of about two feet. In this locality (2,500 to 3,500 feet altitude) they were found on a peculiar slate-colored soil in the lower part of the tree yucca zone. Soon after a shower they are said to be usually common, but during the hottest months, when most of the vegetation is dormant, they retreat to their burrows and hibernate."

*Field Col. Mus. Pub. Zool. Ser. Vol. III, 199–206, 271–283.

16 Ja '06 Field Museum

Family **Eublepharidæ.**

Coleonyx variegatus (Baird). BANDED GECKO.

One specimen of this species was secured at San Felipe, Lower California.

Family **Iguanidæ.**

Dipsosaurus dorsalis (Baird & Girard). CRESTED LIZARD.

"This lizard is very common about the sand dunes in Death Valley, where it lives in burrows beneath the stems of mesquite. It is often seen on the stems of the mesquite, eating the foliage. This lizard was very abundant in mesquite thickets at the base of the Panamint Mountains. It is apparently scarce in Lower California, all of the individuals seen there were taken."

Specimens were taken in California at Furnace Creek, Mesquite Valley, Ballarat, and Daggett, and in Lower California at San Felipe Bay.

Uma notata Baird. SAND LIZARD. PLATE I.

*Uma notata** Baird is based on a small specimen from the "Mojave Desert." The description given by Baird is very short, and this, supplemented by Cope in his work on North American Reptiles†, is rather unsatisfactory. The specimens in the collection studied by me agree fairly well with the above brief accounts of this species, except in the number of femoral pores. The number of these vary greatly. The main row has from 23 to 31, while in many specimens there is a partial second row, which usually contains from 1 to 6 additional pores. Professor Cope gives 17 or 18 in the type. I here append a detailed description of the species, based on the material at hand, and also a table of measurements. It is hoped this will aid some in properly defining the species of this interesting and little-known group.

Body rather broad, depressed, its greatest width 2½ to 2⅔ in its length; tail broad and depressed, the depressed arm not quite reaching groin; the depressed leg reaches beyond gular fold to ear or eye; occipital plate small, subtriangular, and separated from the small plates of the supraocular region by four or five rows of scales;

*Proc. Acad. Nat. Sci., Phila., 1858, 257.

†Rep. U. S. Nat. Mus. 1898, 277.

Table of Measurements (in mm.) of Uma ornata Baird.

SEX.	♂	♂	♂	♂	♂	♂	♀	♀	♀	♀	♀	♂	♀
Length of body	89.5	112.8	113.0	84.5	77.0	84.5	73.0	70.0	70.5	69.0	58.5	64.5	64.0
Length of tail	85.4	.....	.....	.....	92.0	65.0	69.5	75.0	.....	71.0	59.0	74.0	.....
Snout to ear	18.8	20.5	20.6	17.8	17.5	18.5	16.0	15.0	15.0	15.0	14.3	15.3	14.6
Width of head	17.0	17.8	18.0	15.5	15.5	16.0	15.0	13.0	13.5	13.5	12.8	13.5	12.8
Snout to occipital	16.1	17.7	17.7	15.4	15.5	16.0	14.4	13.0	13.0	13.0	12.4	13.0	12.3
Length of arm	39.0	42.5	43.5	38.0	40.0	37.3	33.0	32.0	34.0	30.0	28.0	30.0	27.5
Length of leg	60.0	70.0	68.0	63.5	59.7	62.4	56.4	52.8	52.6	49.5	44.5	44.0	45.4
Length of tibia	26.4	30.0	29.5	25.0	26.0	26.1	22.3	22.0	22.5	20.3	19.5	21.5	20.0
Base of fifth toe to end of fourth toe.	26.0	26.0	27.2	25.0	25.0	26.0	22.2	21.0	21.4	21.0	19.0	21.4	19.8
Femoral pores, main row	30.27	29.29	27.31	26.25	26.27	29.30	25.31	28.26	29.32	23.27	25.28	28.29	30.28
Femoral pores, additional row	0.0	1.2	0.1	2.0	5.5	5.6	1.2	4.3	2.2	0.0	3.2	3.0	3.6
Spots under tail	5	.....	.....	.....	7	7	5	7	.....	5	3	5	.....
Spots behind femoral pores	absent	present	absent	present	absent	absent	present	present	present	absent	absent	present	absent

plates on anterior third of head larger than those of supraocular and parietal regions; three canthal scales, the first one very small, the second largest; six scales forming a suborbital ridge, the fourth much the largest, the anterior scale of this ridge being separated from the labials by five or six rows of small scales, the fourth scale by two rows; superior labials nine, inferior twelve or thirteen; the first five labials margined by a row of flat scales much larger than those on throat, a second row of large scales between this row and labials posterior to fifth labial; scales on the anterior surface of humerus large, pointed but not keeled; scales of throat and just back of gular fold smaller than the others on under-surface of the head; scales on margin of gular fold slightly enlarged; eyelids margined with scale-like processes, and covered with minute scales; anterior margin of femur and under surface of tibia with enlarged scales; scales anterior to femoral pores larger than those posterior; free scales forming the fringe, external side of sole and on fourth toe, larger than those on second and third toes, those on first and fifth toes minute; scales on dorsal region small and rounded, those on belly flat and larger; lateral scales smallest; anterior margin of the ear with narrow elongated scales; scales on tail similar to those on body, becoming larger posteriorly; males with enlarged post anal scales.

Color light reticulated with black, forming circles or ellipses on the center of dorsal region, with a brown spot in the center of each; sides and head spotted with brown and black, under surface of head white with black spots, usually forming three rows on each side, and extending backwards, meeting in the center; throat with two black crescents; a black lateral blotch, and a small black blotch occasionally on each side just behind the inner femoral pores; under surface of tail with from three to seven black spots.

Below is given by Mr. Heller the coloration in life of an old male. "Above creamy white blotched with irregular black blotches forming occelated spots with black centers, the black marking everywhere edged with ferruginous; anterior part of nape and occiput without occellations, the dark spots becoming brownish; head above light brownish, banded irregularly with dusky; tail above brownish color without occellations, anteriorly marked with black reticulations, posteriorly with rusty markings extending along median line to the tip; forelegs spotted above with black and rusty on a brownish clay ground, the spots becoming obsolete on the phalanges; hind legs light brownish, clay spotted, with rusty on thighs; distally spotted with dusky; sides of head spotted like nape; the sides of body with a large median inky black spot; two similar spots before the hind

leg; thigh anteriorly light olive, becoming golden distally; beneath thigh at base of tail a small black spot margined with golden; posterior part of thigh spotted with golden olive; sides of tail golden yellow; tip of chin rusty, forethroat dusky banded on whitish ground; throat barred with black; fore part of chest behind collar spotted with olive and blackish; belly and chest whitish; hind legs beneath the same, with light olive wash; a blackish blotch posterior to beginning of femoral pores on each side, tail below like the thighs, near the tip crossed by a few black bars."

"This species was taken only in the drifting sand areas of the bed of the Mojave River, where it is a common form. It has the peculiar habit of burying itself in the sand when pursued. The peculiar fringe of scales along the toes evidently serves to give the lizard sufficient speed over the loose sand to force its body beneath the surface. The sharp depresssed snout is evidently another modification to aid it in getting beneath the sand. Usually the entire body is buried, but occasionally the tip of the tail protrudes. Their peculiar mottled coloration does not render them protectively colored on the white sand, but their peculiar mode of eluding pursuers renders this unnecessary, and at the same time limits them to areas covered by fine drifting sand.

"The food of this species consists largely of the leaves of a forget-me-not (*Cryptonthe*), which is abundant among the sand dunes. The young leaves of the desert willow (*Chilopsis*) are also eaten. The insect food consists of caterpillars, ants, bees, etc. One specimen was seen several feet up on an oblique limb of a desert willow, in search of the young leaves which were just budding."

Specimens were secured at Daggett, California.

Callisaurus ventralis (Hallowell). GRIDIRON-TAILED LIZARD.

"This is one of the most abundant species in southeastern California and the eastern half of the northern portion of Lower California. At San Felipe, Lower California, it was the most abundant lizard observed. This species inhabits dry, sandy regions. It was very abundant on the floor of Death Valley, in sandy washes, and on sandy mesas in the deserts, and in the mouths of cañons at the base of the Inyo and Panamint Mountains."

Specimens were secured at the following localities: Keeler, Emigrant Cañon, Mesquite Valley, Furnace Creek, Ballarat, Lone Willow Springs, Pilot Knob, Lanes Mill, Owens Lake and Daggett, California; Trinidad, San Matias, San Felipe, Cañon Esperanza, San Antonio, Matomi, and Aguas Escondita, Lower California.

Crotaphytus baileyi Stejneger. BAILEY'S LIZARD.

"This lizard is very common on rocky ground in southeastern California and south into Lower California to the foothills near San Felipe Bay. It was also observed in Lower California at Trinidad and Cañon Esperanza. In the Panamint Mountains it was common everywhere in rocky ground from 2,000 to 8,000 feet, although on the east slope it was not observed below 4,000 feet. In the Inyo Mountains this species was occasionally seen from the base to over 8,000 feet. Those at 8,000 feet were more grayish and smaller than the ones living at lower elevations."

In all of the specimens taken there are two rows of scales between the supraorbitals. This species varies much in color. Some are profusely spotted with white, others have very few spots. The young usually have prominent white bars across the back, while in adults from the same locality these bars are quite indistinct. Owing to the constancy of the two rows of scales between the supraorbitals, I follow Dr. Stejneger in using the name proposed by him for this lizard.

Specimens were secured at the following localities: Beveridge Cañon, Coso Valley, Shepherd Cañon, Emigrant Cañon, Wild Rose Springs, and Hannopee Cañon, California; San Felipe and San Salado, Lower California. In the collections of the Museum are specimens from Winslow and Tombstone, Arizona, and Grand Junction, Colorado. These, with one exception (one from Winslow, Arizona), have the two rows of scales between the supraocular. In the exception there is but one scale, which extends across this space. This is probably the accidental fusing of two scales.

Crotaphytus wislizenii Baird & Girard. LEOPARD LIZARD.

"This species is more active and wary than the preceding, with which it is usually associated, though much less abundant. It was not observed at a higher altitude than 7,000 feet. One individual was seen in Lockwood Valley at 5,000 feet, and one in Cuddy Cañon lower down. These places are near Ft. Tejon." Two specimens were taken at Owens Lake, California.

In the young the light bars on the back are more prominent, and at this stage they much resemble the following species. In life the lighter colors are red or are deeply tinged with that color.

"The food of this species consists largely of smaller lizards, chiefly species of *Uta* and *Cnemidophorus*."

Specimens were secured at the following places: Coso Valley, Emigrant Cañon, Furnace Creek, Wild Rose Springs, Coal Kilns,

Lone Willow Springs, Pilot Knob, and Lanes Mill, California; San Quentin, Lower California.

Crotaphytus silus Stejneger. SHORT-NOSED LEOPARD LIZARD.

"Common in the San Joaquin Valley north of Rose Station, where they are found living in abandoned burrows of the Kangaroo-rat, *Perodipus*. They do not leave the level floor of the valley, but extend to the base of the hills near the mouth of the Cañon de las Uvas. The species is very wary, which is doubtless due to the open and exposed nature of their habitat. All the stomachs examined contained grasshoppers.

The adults in life were bright lemon yellow on the belly and under surfaces of the limbs and tail. Above they were cross-barred like the young of *C. wislizenii*, of which their coloration is probably an arrested stage."

The throat of this species contains much less black than that of the preceding. There is usually in the center a longitudinal dark stripe with a few irregular elongated blotches on each side. On the throat of *C. baileyi* the black is arranged in several longitudinal bands.

Specimens in the collection were secured at Rose Station, California.

Sauromalus ater Duméril. ALDERMAN LIZARD. CHUCK-WALLA.

"This is the largest lizard native to the State of California. It is reported to be common in mid-summer in the rocky cañons of the mountains near Daggett, and in the rocky cañons entering Death Valley. This species is common in the Panamint and Inyo mountains, from their bases to about 6,000 feet. It is much sought for by the Panamint Indians for food. Their method of hunting them consists of searching the cracks in cliffs, from which retreats they are secured by means of a wire hook inserted in their bodies. It probably nowhere exceeds an altitude of over 6,000 feet.

"This species is reported to occur in the summer in the desert ranges of the northern part of Lower California."

One specimen was taken at Beveridge Cañon, one at Furnace Creek, and two in Hannopee Cañon, California.

Uta mearnsi Stejneger. MEARNS' LIZARD.

This species is quite plentiful in the northern portion of Lower California. Specimens were collected at the following localities: San Salado, San Matias, Cañon Esperanza, Parral, and Matomi, Lower California.

Uta graciosa (Hallowell). LONG-TAILED UTA.

"This rare species was observed only on trees and bushes at San Felipe, Lower California, where four specimens were taken. This lizard apparently does not have a wide range."

Uta stansburiana Baird & Girard. BROWN-SHOULDERED LIZARD.

This extremely variable lizard is very generally distributed in southeastern California and northern Lower California. "In the Panamint and Inyo mountains it was found at an altitude of 8,000 feet. It is also abundant in the San Joaquin Valley, and in the mountains about Ft. Tejon, reaching on Mt. Piños an altitude of 6,000 feet. This species appears to be at home in river washes, on sandy soil, and on rocky ground. The color ranges from a dark blue to a light gray, all being more or less profusely spotted with white. In general, those taken on sandy soil are the lighest in color."

Specimens of this species were taken in the following named places: Mesquite Valley, Beveridge Cañon, Coso Valley, Furnace Creek, Ballarat, Coal Kilns, Lone Willow Springs, Pilot Knob, Daggett, Mt. Piños, Piru Creek, Ft. Tejon, California; Hansons Lagoon, El Alamo, San Salado Cañon, Trinidad, San Matias, Cañon Esperanza, Agua de las Fresas, San Felipe, San Antonio, Santa Rosa, Parral, Matomi, and San Quentin, Lower California.

Uta microscutata Van Denburgh. SMALL-SCALED UTA.

This species is rather common in the northern portion of Lower California. The specimens in the collection vary from nearly a uniform blue black to a gray, belly usually blue with a few white spots on the margins.

They were taken as follows: San Salado Cañon, San Matias, Cañon Esperanza, San Antonio, Parral, San Quentin, and Rosarito, Lower California.

Sceloporus magister Hallowell. SCALY LIZARD.

This is the largest species of the genus included in this paper. The length from tip of snout to vent is about 100 mm.

"This species is common on rocky ledges and trunks of yuccas in southeastern California. In the Panamint Mountains it is found at an altitude of 7,500 feet."

Specimens were secured in the following localities: Lone Pine, Emigrant Cañon, Coal Kilns, Lone Willow Springs, Pilot Knob, Little Owens' Lake, and Lanes Mill, California. "A few individuals were seen on yuccas in Antelope Valley near Manzana."

Sceloporus zosteromus Cope.

This large lizard is apparently distributed throughout the entire peninsula of Lower California. This species resembles the preceding and may prove to be only a variety of that species. *Sceloporus clarkii* B & G, which does not occur in the region under discussion, is quite distinct from either. From my study of the material of this group in the museum I am led to accept the views of Dr. Stejneger.*

Specimens of this species were taken in the following localities: San Jose, Matomi, Rosarito, and San Quentin, Lower California.

Sceloporus orcutti Stejneger. DUSKY SCALY LIZARD.

This lizard is common in the northern part of Lower California, where it attains about the same size as does *S. zosteromus*.

It was also observed by Mr. Heller to be quite common at Los Encinos, Lower California.

Specimens were secured at the following localities: San Salado Cañon, Trinidad, San Matias, Agua de las Fresas, Cañon Esperanza, Parral, Matomi, Rosarito, and San Antonio, Lower California.

Sceloporus biseriatus Hallowell. FENCE LIZARD.

This very variable and widely distributed species is quite as abundant as any of the genus in the region treated of in this paper. "It is usually found on trees or shrubs, frequently at an altitude of 8,000 feet."

Specimens were secured at the following places: Beveridge Cañon, Lone Pine, Hot Springs, Coso Valley, Coal Kilns, Hannopee Cañon, Wild Rose Springs, Piru Creek, and Ft. Tejon, California; Hansons Lagoon, Trinidad, San Jose, Santa Rosa, Rosarito Divide, and San Antonio, Lower California.

This species was also seen by Mr. Heller at Santa Tomas and Los Encinos, Lower California.

Sceloporus graciosus Baird & Girard. MOUNTAIN LIZARD.

This species has a considerable vertical range. "It was seen on Telescope Peak at an altitude of 10,500 feet. In the Inyo Mountains it was abundant on granite boulders and in sage brush at from 7,000 to 8,500 feet. A few were seen at Ramshaw Meadows at 9,000 feet, and in Lockwood Valley near Ft. Tejon."

Specimens were secured at the following localities: Beveridge Cañon, Coal Kilns, Hot Springs, and Telescope Peak, California; Agua de las Fresas, Vallecitos, and La Grulla, Lower California.

*N. A. Fauna, No. 7, 178.

Phrynosoma blainvillii Gray. BLAINVILLE'S HORNED TOAD.

A few specimens of this species were secured at Neenach and Mt. Piños, California, and, Trinidad and San Salado, Lower California.

Phrynosoma frontale Van Denburgh.

One specimen from Rose Station, California. A horned toad, probably this species was observed to be common in Lockwood Valley. These were a peculiar wood-brown above, with the under surfaces bright chrome yellow in life."

Phrynosoma platyrhinus Girard. DESERT HORNED TOAD.

This species is more abundantly distributed over Southern California than any other member of the genus. "It is usually found in the desert where the surface is stony, gravelly, or sandy. In the Panamint Mountains it was found at the base to about 7,000 feet.

Specimens of the desert horned toad were taken in the following places: Mesquite Valley, Coso Valley, Furnace Creek, Wild Rose Springs, Coal Kilns, Pilot Knob, Antelope Valley, and Ballarat, California; San Felipe, Lower California.

"This species was found to be quite abundant at Palm Springs, Lone Willow Springs, and on the gravelly washes and mesas throughout Death Valley."

Phrynosoma coronatum (Blainville).

One specimen from San Quentin, Lower California.

Family **Anguidæ.**

Gerrhonotus scincicauda (Skilton). ALLIGATOR LIZARD.

A few specimens of this species were secured near Ft. Tejon, and Piru Creek, California, and at San Antonio, Lower California.

Gerrhonotus palmeri Stejneger. MOUNTAIN ALLIGATOR LIZARD.

Apparently not common, "generally found along creeks or in dry meadows. A few were seen near Lone Pine, at an altitude of 9,000 feet."

A few specimens were secured at Hot Springs, California.

Family **Anniellidæ.**

Anniella pulchra Gray. Silvery Footless Lizard.

One specimen of this species was taken at San Salado Cañon and one at San Jose in Lower California.

Family **Xantusiidæ.**

Xantusia vigilis Baird. Desert Night Lizard.

"This species is found beneath the prostrate limbs of the yucca tree (*Yucca arborescens*) in the Mojave Valley. In Lower California, at San Matias Pass, it inhabits the fallen trunks of a smaller yucca tree. This species was also observed beneath the prostrate limbs of tree yuccas in the Antelope Valley, and at Piru Creek about the tree yuccas on the east slope of the Inyo Mountains."

Specimens were secured at Lanes Mill, Piru Creek, Neenach, and Mojave, California.

Family **Teiidæ.**

Cnemidophorus tigris Baird & Girard. Desert Whiptail.

This species is very abundant in the southeastern part of California. "It is found on the desert and on the mountain sides to the lower edge of the Piñon zone." Individuals of this species living in sandy regions are much lighter in color than those living in the mountains. The under surface of the light-colored ones is nearly white, no spots on the chin, and the black or dark blue of the belly being in blotches on its anterior half. The under surface of some of the darker specimens is nearly a uniform blue, with scarcely any trace of spots. All grades are found between these two extremes. The color of the dorsal region varies greatly. On the young are six longitudinal white lines, later white spots form between these lines. These spots increase in size until they extend to the light lines, and thus are formed irregular, narrow, dark cross bars, the lines becoming later quite or entirely obliterated. Most of the species of this genus undergo a similar change. The result is that species have been unduly multiplied. Professor Cope noted this change in color pattern

and regarded it not due to age, because all specimens having the same color pattern were not of equal size.

In this connection it must be remembered that cold-blooded animals do not, in general, grow as uniformly as do warm-blooded ones, and so two lizards of the same age may differ greatly in size. The color pattern of a particular stage may also develop quite independently of age. About all we can say in this connection is that one particular pattern appears before another certain one does, and that the earlier pattern is usually associated with the smaller individuals. This genus of lizards is badly in need of careful revision, but this can not be accomplished except with a large series of various ages of each species.

Specimens of this species were secured in the following localities: Mesquite Valley, Beveridge Cañon, Lone Pine, Keeler, Coso Valley, Emigrant Cañon, Furnace Creek, Wild Rose Springs, Ballarat, and Lone Willow Springs, California.

Onemidophorus stejnegeri VanDenburgh. STEJNEGER'S WHIPTAIL.

This species much resembles the preceding, and I am inclined to believe that it is only a geographical variety, but until this is proven to be the case, I recognize it as a distinct species.

Specimens were taken in the following localities: Trinidad, San Matias, San Felipe, Cañon Esperanza, San Antonio, Parral, Matomi, Rosarito, and Aguas Escondito, Lower California.

Verticaria sericea VanDenburgh. ORANGE-THROAT.

A few specimens of this species were taken at San Salado, Rosarito, Aguas Escondito, and San Antonio, Lower California.

Family **Colubridæ.**

Chilomeniscus fasciatus Cope. BURROWING SNAKE.

Two specimens of this species were secured, as follows: San Quentin, Lower California,—scales 13-125-25; upper labials 7; black rings 23-5; spaces between rings red in life; some of the black rings complete though narrow on ventral surface; length of body 170mm.; tail 28mm. San Antonio, Lower California,—scales 13-120-21; black rings 22-5; length of body 175mm.; tail 23mm.

Chioractis occipitalis (Hallowell). DESERT SNAKE.

One specimen from Owens Lake, California,—scales 15-162-42: length of body 197mm.; tail 40mm.

Lampropeltis zonata (Blainville). CALIFORNIA KING SNAKE.

One specimen of this species, the only one seen, was taken near Hot Springs, California, altitude 8,000 feet. Scales 23-222-65; length of body 660mm.; tail 115mm.

Lampropeltis boylii (Baird & Girard). BOYLE'S MILK SNAKE.

An apparently not common species. A few specimens of this snake were secured, as follows: Wild Rose Springs, California,—scales 23-251-56; length of body 789mm.; tail 108mm. Beveridge Cañon, Lower California,—scales 23-250-53; length of body 681mm.; tail 96mm. San Salado Cañon, Lower California,—scales 23-251-61; length of body 918mm.; tail 134mm. San Quentin, Lower California,—scales 23-254-? and scales 23-256-?.

Salvadora grahamiæ Baird & Girard. PATCHED-NOSED SNAKE.

One specimen of this species was secured at San Matias, Lower California. Preoculars 2; post-oculars 2; temporals 2-3, superior labials 9-11; scales 17-123-82; length of body 351mm.; tail 103mm.

Bascanium flagellum Shaw. WHIP SNAKE.

"Common on the dry mesas flanking the mountains." A very variable and widely distributed species. Specimens were secured as follows: Furnace Creek, California,—scales 17-194-111; length of body 401mm.; tail 215mm. Joruncho Ranch, Lower California,—scales 17-194-110,; length of body 990mm.; tail 373mm. San Quentin, Lower California,—scales 17-194-110,; length of body 883mm.; tail 351mm. Rosarito, Lower California,—scales 17-196-124; length of body 750mm.; tail 317mm. Parral, Lower California,—scales 17-199-?.

Pityophis catenifer (Blainville). WESTERN GOPHER SNAKE.

"This species was found to be common about ranches, being distributed over the area included in this paper. At Lone Willow Springs one specimen was taken from the nest of a *Neotoma* and another one from the burrow of *Spermophilus leucurus*." Specimens of this species were secured, as follows: Wild Rose Springs, California,—scales 33-261-57; length of body 1,135mm.; tail 156mm.; four prefrontals,—scales 31-245-65; length of body 1,038mm.; tail 152mm.;

four prefrontals. Lone Willow Springs, California,—scales 33-253-64; length of body 1,014mm.; tail 154mm.; four prefrontals,—scales 33-253-62; length of body 1,045mm.; tail 161mm.; four prefrontals, the two inner smaller than outer ones and not in contact with frontal. Coso Valley, California,—scales 31-247-57; length of body 1,122mm.; tail 148mm.; four prefrontals, the middle suture extending a short distance on frontal. Rose Station, California,—scales 33-224-56; length of body 728mm.; tail 131mm.; four prefrontals. Trinidad, Lower California,—scales 33-238-62; length of body 1,015mm.; tail 149mm.; prefrontals two, each partially divided anteriorly by a suture.

This is a very variable species. I have compared the specimens listed above with others from the west slope of the Sierras, and regard all as belonging to one species.

Family **Crotalidæ.**

Although the area included in this paper contains several species of rattlesnakes, "not all were taken, because they are nocturnal, and could not be found in the daytime. During warm nights they were quite active, and their tracks were quite abundant."

Crotalus tigris Kennicott. TIGER RATTLESNAKE.

"The tiger rattlesnake is common in the sand dunes and in sandy places at the heads of cañons in southeastern California, ascending the east slope of the Sierras to about 6,000 feet. In the Inyo Mountains it occurs at 8,000 feet. Those taken in sandy places are lighter in color than when taken elsewhere. In sandy places this rattlesnake has the habit of worming out shallow depressions, in which they repose flush with the surface, which makes them difficult to see on account of their protective coloration." Specimens of this species were secured, as follows: Beveridge Cañon, California,—scales 23-183-25; length of body 688mm.; tail 48.1mm. Lone Pine, California,—scales 23-178-20; length of body, 515mm., tail, 35.2mm. Wild Rose Springs,—scales 23-181-19; length of body 625mm.; tail 46mm.,—scales 25-174-26; length of body 708mm.; tail 56mm.,—scales 23-177-24; length of body 707mm.; tail, 53mm.,—scales 25-170-24; length of body, 750mm., tail. 58mm.—scales 23-180-26; length of body 716mm.; tail 56mm. Coso Valley, California,—scales 23-176-21; length of body 618mm.; tail 35.2mm.,—scales 23-167-26; length of body 642mm.; tail 55.7 mm.

Crotalus lucifer Baird & Girard. PACIFIC RATTLESNAKE.

"One specimen taken near Mojave, California, far out on the desert, where it was apparently a straggler." Scales 25-178-28; length of body 860mm.; tail 75.6mm. A second specimen was taken on Mt. Whitney (8000 feet), California,—scales 25-189; length of body 878mm.; tail 60.8mm. A third near Ft. Tejon,—scales 25-172-20; length of body 263mm.; tail 20mm.

Crotalus ruber (Cope). WESTERN DIAMOND RATTLESNAKE.

"This rattlesnake is very common at the base of the San Matias Mountains in Lower California." Specimens were secured in this region as follows: San Salado Cañon, Lower California,—scales 29-203-27; length of body 989mm.; tail 76mm. San Matias, Lower California,—scales 27-195-27; length of body 936mm.; tail 71.1mm.—scales 27-194-27; length of body 881mm.; tail 53.4mm. Santa Catalina, Lower California,—scales 27-205-26; length of body 379mm.; tail 49mm. Agua Escondito, Lower California,—scales 27-188-26; length of body 910mm.; tail 65mm. Matomi, Lower California, —scales 29-201-26; length of body 960mm.; tail 60mm. San Quentin, Lower California,—scales 29-185-27; length of body 1,160mm.; tail 96mm.

Crotalus helleri sp. nov. PLATE II.

Type No. 1272, from San Jose, Lower California. Scales 25-173-25; length of body 957mm.; tail 61mm; first pair of lower labials meeting in front of geneials; scales on top of snout larger than on top of rest of head; seven scales between supraoculars; preoculars not divided vertically.

Ground color of body very dark, dark blotches on back separated by narrow yellow lines, forming a chain along back, being obscure on anterior third of body and becoming light cross streaks on posterior fifth; a light line one scale wide from middle of eye to eighth upper labial extending backward to angle of mouth covering the labials and a small portion of the row of scales just above them; tail a dark brown, with three light cross bands on anterior half; ventral surface much mottled and blotched with dark brown; on anterior half of body the white predominates, on posterior half the darker. Six rattles.

Three other specimens from same locality,—scales 23-171-23; length of body 784mm.; tail 53mm.—scales 25-174-20; length of body 568mm.; tail 38mm.—scales 25-170-23; length of body 476mm.; tail 38mm.

This species is quite different from *Crotalus atrox* B & G, which it most resembles, in being much darker, in the indistinctness of the dorsal blotches, the dark mottled ventral surface, and in having a black tail crossed with light bands; the stripes on the side of the head are quite different. Named for Mr. Edmund Heller, its discoverer.

Crotalus cerastes Hallowell. HORNED RATTLESNAKE: SIDEWINDER.

"This species is rather common in the Colorado and Mojave deserts, but owing to its strictly nocturnal habits individuals are seldom seen. Many tracks were seen on the sand dunes in the Mesquite Valley, but only two individuals were seen, both of which were captured. The sidewinder is common in northeastern Lower California, where it is confined to low gulf strip."

Specimens of this species were secured at the following localities: Mesquite Valley, California,—scales 21-150-21; length of body 457mm.; tail, 38.1mm.,—scales 21-142-25; length of body 330mm.; tail 38.1mm Ballarat, California,—scales 21-148-18; length of body 417mm.; tail 44.5mm.,—scales 23-140-24; length of body 238mm.; tail 25.4mm. Daggett, California,—scales 21-141-25; length of body 266mm.; tail 30.6mm. Oro Grande, California,—scales 23-143-17; length of body 404mm.; tail 27.9mm. San Felipe, Lower California,—scales 23-148-19; length of body 592mm.; tail 38.1mm.

Crotalus mitchellii (Cope). BLEACHED RATTLESNAKE.

Two specimens of this species were secured in Lower California, where it appears to be not very common. The smaller one has ten rattles, the larger six.

Parral, Lower California,—scales 25-174-25; length of body 744mm.; tail 60.9mm. San Matias, Lower California,—scales 25-177-24; length of body 970mm.; tail 60.9mm.

Crotalus willardi sp. nov. PLATE III.

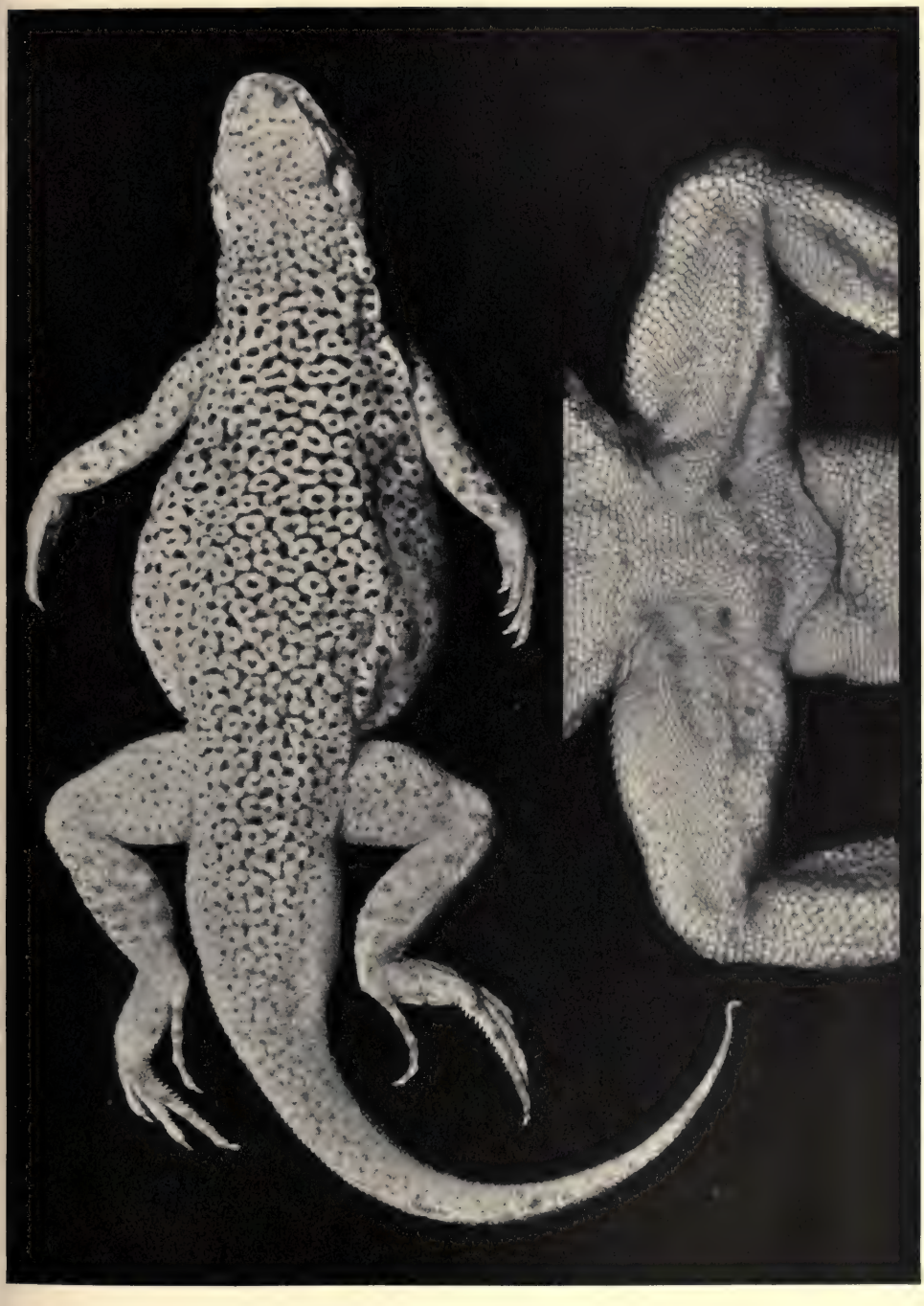
One specimen, No. 902, from Tombstone, Arizona. Scales 25-160-24, length of body 380mm.; tail 35mm.; head flat, the snout slightly elevated; rostral higher than wide in contact with the prenasals; scales on top of head small, the anterior ones slightly enlarged, and with their anterior edges elevated; preocular large, not divided vertically; scales in front of supraocular small; loreal single; supra labials 14; inferior labials 13; two rows of scales between supralabials and eye; eight rows of scales between supraocular plates;

ten rows between their anterior angles; first three rows of scales without keels.

Color light olive brown, more or less irregularly blotched with white; dorsal region crossed by nineteen lighter bands, each one scale length in width and narrowly margined with black; dorsal transverse bars about nine scale lengths apart; no transverse bands on tail; ventral surface much speckled and mottled with black, becoming darker posteriorly; small black dots on sides, these most numerous near ventral region; supraocular light ash color; a large ashy blotch on occiput more or less reticulated posteriorly with darker; snout and region between supraoculars olive brown; a distinct white line one scale wide from upper edge of prenasal above pit to upper edge of seventh supralabial, passing obliquely downward to tenth supralabial and backward covering the last four supralabials; a white line on lower half of first five supralabials, passing downward and backward on lower jaw to white on throat; the space between these bands brown; rostral with white median line.

In general, this species bears some resemblance to *Crotalus lepidus* Kennicott. It differs in being light brown instead of greenish gray, and in having shorter transverse dorsal bars, which are much lighter than the ground color, instead of black cross bars, which are so characteristic of *C. lepidus*.

Named for Professor F. C. Willard, of Tombstone, Arizona, its discoverer.



× 2 2 × 1.1

UMA NOTATA Baird.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

× 1 3 × 2.2

CROTALUS HELLERI Meek.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

UNIVERSITY OF ILLINOIS-URBANA
590.5FI C001
FIELDIANA, ZOOLOGY$CHGO
7 1905
3 0112 009379915